

REMARKS

Claims 1 to 24 are pending and stand rejected. Reconsideration of the rejection is respectfully requested in view of the above amendment and the following remarks.

Applicant thanks the Examiner for the careful examination of the application and his dissemination in 88 paragraphs of objections, rejections, and comments.

Applicant addresses the objections, rejections, and comments in the order as they appear in the Office Action.

In paragraph 3 of the Office Action, it is indicated that in “the information disclosure statement filed 7/23/02, the foreign patent document JP62063334 is listed but not received and a document JP62063344 was received but not listed in the IDS. The reference was not considered”. It is clear that there was a typo in identifying this reference in the form PTO-1449 submitted on 7/23/02. Accordingly, a new form PTO-1449 is submitted with the present response, which correctly lists the document JP62063344. Consideration of the listed reference is requested.

In paragraph 4 of the Office Action it is indicated that in Fig. 1 of the drawings, “lines 155 and program address line that is an input to the loop buffer 1124 are shown to be thinner as compared to the other data lines. This inconsistency may lead to confusion with say a control line”.

Applicant respectfully submits that the above reference lines are intended to be thinner to indicate that the reference lines may carry data or control bits of a width which may be less than the full width of the respective bus. Applicant respectfully submits that

the drawing as shown in Fig. 1 would not be confusing to one ordinary skilled in the art. Withdrawal of the objection is respectfully requested.

In paragraphs 5 and 6 of the Office Action, it is indicated that “the abstract of the disclosure contains legal phraseology and should be changed appropriately”. Applicant cannot find in the abstract of the disclosure any legal phraseology which appear inappropriate. Indeed, applicant cannot find in the abstract of the disclosure improper legal phraseology set forth as examples in paragraph 5 of the Office Action. The Examiner is invited to point to which particular legal phraseology is improper in the abstract of the disclosure for correction.

In paragraph 7 of the Office Action it is indicated that the specification failed to provide proper antecedent basis for the claimed subject matter; in particular, in claim 7.

Claim 7 has been amended to more clearly define the invention as described in the specification.

The title has been amended as suggested in paragraph 8 of the Office Action.

Claims 3, 20, and 24 were objected to for informalities as indicated in paragraphs 9 to 11 of the Office Action. Claims 3, 20 and 24 have been amended to remove the informalities.

Claim 20 was rejected under 35 U.S.C. 112, second paragraph, as lacking antecedent basis, as indicated in paragraphs 12 to 14 of the Office Action. Claim 20 has been amended to depend upon claim 16 as suggested.

Claims 1 to 7, 14, 15, 19, 21, 23, and 24 were rejected under 35 U.S.C. 103 as unpatentable over Kim in view of Kiuchi for the reasons stated in paragraphs 16 to 54 of

the Office Action. Claims 8 to 13, 16 to 18, and 20 were rejected under 35 U.S.C. 103 as unpatentable over Kim in view of Kiuchi and further in view of Moyer for the reasons given in paragraphs 55 to 86 of the Office Action.

The rejection is respectfully traversed.

The Kim reference cited and relied upon by the Examiner in the above rejections was filed in the U.S. on October 14, 1999 and issued on March 11, 2003. The present application was filed on May 24, 2001, after the filing date of Kim but before the issuance of Kim in 2003. Thus, Kim qualifies as prior art under 102(e).

Under 35 U.S. C. 103(c):

“Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.”

Both the Kim reference and the claimed invention of the present application, at the time the invention was made, were owned by the same person or subject to an obligation of assignment to the same person. Accordingly, the Kim reference is not applicable to preclude the patentability of the claimed invention of the present application under 35 U.S.C. 103(c). With the Kim reference removed, a prima facie case of obviousness of the claims of the present application based solely on Kiuchi or Kiuchi and Moyer cannot be established. Accordingly, claims 1 to 24 are patentably distinct and not rendered obvious by the cited art.

Even assuming arguendo, that Kim was applicable as a prior art reference, claims 1 to 24 of the present application are not rendered obvious by Kim and Kiuchi or by Kim,

Kiuchi, and Moyer. Claim 1 recites, inter alia,

A method of processing loop instructions using a data processing device having a central processing unit (CPU) and a coprocessor, wherein the CPU fetches and decodes instructions retrieved from program memory and determines whether the instructions are CPU-type or coprocessor-type, comprising the steps of:

decoding the coprocessor-type instructions by the coprocessor and if a loop operation is decoded, retrieving from the program memory the instructions within the loop;

storing the retrieved instructions within the loop in a loop buffer; and

inhibiting instruction fetch from the program memory while instructions within the loop are executed in a subsequent iteration of the loop.


Claim 1 specifies a system requiring interactions among functions of a CPU, a coprocessor, a program memory, and a loop buffer, including decoding coprocessor-type instructions by a coprocessor retrieved from a program memory. Claims 14 and 24 recites similar features as claimed in claim 1. Kiuchi discloses a data processor having control circuitry and an instruction buffer for processing loop instructions. The instructions are fetched from the instruction buffer and not the program memory to reduce power consumption. There is no hint, suggestion, or teaching in Kiuchi to use a coprocessor to process information retrieved from a program memory, or coordination of functions between a CPU and a coprocessor to process loop instructions. The Examiner suggests that there is motivation to combine Kiuchi to Kim because “it overall leads to a system consuming even less power while showing better loop execution performance” (paragraph 22 of Office Action).

Applicant respectfully submits that to one of ordinary skilled in the art, there are

countless ways or designs that can be engineered to conserve power and improve loop execution performance, but Kiuchi makes no hint whatsoever to combine the loop execution processing with coprocessor processing. Without an objective indicia or motivation in either Kim or Kiuchi to combine the teachings, rejection of the claims based on such combination is improper. Accordingly, claims 1 to 14, and 24 and claims depending thereupon are patentably distinct and not rendered obvious over Kim and Kiuchi or over Kim, Kiuchi, and Moyer, even if Kim was applicable as a prior art reference in the rejection.

For the foregoing reasons, the present application including claims 1 to 24 is believed to be in condition for allowance. The Examiner's early and favorable action is respectfully urged.

Respectfully submitted,



Frank Chau
Reg. No. 34,136
Attorney for Applicant(s)

F. Chau & Associates, LLC
1900 Hempstead Turnpike, Suite 501
East Meadow, NY 11553
TEL.: (516) 357-0091
FAX: (516) 357-0092